



## CURRICULUM VITAE ET STUDIORUM

### Personal data

Name	Monica Maria Zoppè
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### Education

Secondary school	Liceo Classico Statale "G. Berchet" Topics of study: Italian, Greek, Latin, History, Philosophy, Arts, Mathematics, Physics, Geography, Foreign language English etc.
Higher education (University)	Università Statale di Milano, Facoltà di Scienze, Dipartimento di Biologia Via Celoria 23, 20131 Milano, Italy.
Thesis	Post-translational modifications and transport of storage proteins of the bean, <i>Phaseolus vulgaris</i> . Istituto Biosintesi Vegetali, CNR of Italy, via Bassini 15 Supervisors: Dr. Alessandro Vitale, CNR and Prof. Lilia Alberghina, Univ. of Milano. Final grade 104/110.

### Research experience (after thesis)

1989-90	Vesicular transport of proteins in the <i>Xenopus</i> oocyte system. Lab of Prof. Alan Colman Dept. of Biochemistry, Univ. of Birmingham, UK.
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### **Research experience (cont'd)**

1991-92	Cytoskeletal proteins. Ist. Tecnologie Biomediche Avanzate, CNR of Italy, Milano Group of Dr. Paolo Vezzi
1992-96	Gene therapy of Hemophilia B; Factor IX knock out mouse; Retro- and adeno-viral vectors. The Salk Institute. Molecular Biology and Virology lab, now Lab. of Genetics. La Jolla, CA, USA
1996-98	Immunological implication of adenoviral vectors. Ist. Tecnologie Biomediche Avanzate, CNR of Italy. Milano,
1999-2001	Gene therapy approaches for FIV treatment, as model for HIV; molecular biology of Tat protein of HIV 1. Laboratory of Gene and Molecular Therapy, International Centre for Genetic Engineering and Biotechnology (ICGEB), Trieste
Nov. 2001 to date	Ist. Fisiologia Clinica, National Research Council, Pisa

### **Fellowships awarded**

European Community Young Scientist Training Fellowship (1 year).  
CNR of Italy Fellowship for Italian Scientists Abroad (6 months).  
Telethon Italy Postdoctoral Fellowship for Italian Scientists Abroad (3 y).  
Telethon Italy Postdoctoral Fellowship for Italian Scientists in Italy (2 y).  
Tobacco Related Disease Research Program. Univ. of California .  
International Center for Genetic Engineering and Biotechnology  
Post-doctoral Fellowship (3 y).

### **Grants awarded**

2003	MIUR (Ministero Università e Ricerca).
2004	FIRB (Fondo per Investimenti in Ricerca di Base). 50,000 €
2007	Regione Toscana POR (Programma Operativo Regionale). 400.000 €

### **Scientific Societies**

Donne&Scienza (Italian society of women scientists).  
Italian Society of Bioinformatics (BitS).  
American Society for Cell Biology (ASCB).

### **Prizes and recognitions**

**2012** BioPhysical Society Award "Art of Science Image Contest", San Diego  
**2012** The scientist 'Labby Award' selected the short movie NANOPLANET among 5 finalists.  
**2012** NETTAB Poster prize, for BioBlender  
**2011** DogVille-Viladecans Film Festival, selected ProteinExpressions Study N.3D as finalist.  
**2010** Melzo Film Festival Jury Prize  
**2009** Suzanne Award, selection of Protein Expressions

### **Teaching experience**

Supervision of Laurea and PhD students, since 1997.  
Instructor at the "Gene therapy school", held in Cortona (Italy) by the Società Italiana di Microbiologia.  
Occasional seminars and lessons at the Biotechnology and Bioinformatics courses, University of Pisa.  
"Introduction to Biomedicine and Biotechnology" classes for

students in several high schools.

Seminar at the Scientific Journalism Course of the Scuola Internazionale Superiore di Studi Avanzati (SISSA), Trieste.

Instruction of > 10 researchers from various foreign Universities and Research centers on the use of 3D Computer graphics for depicting biological phenomena

### **Other science-related activities**

Occasional reporting for the EUROSCIENCE magazin.

Occasional reporting for the national newspaper Il Manifesto.

Occasional writing for local magazines (L'Albero Pazzo, Raphael).

Special attention to the subject of bio-weapons, bio-defense and bio-terrorism, with participation in international e-debates, and collaboration to published volume (Il Male Invisibile, Odradek Edition, Rome, 2010)

Occasional participation in radio scientific programs (local and national).

Member of Comitato AreAperta, organizing public conferences of scientific content in the CNR research Area of Pisa.

### **Other**

Vice president of the local chapter of the environmental association Legambiente.

Founder and active member of the Gruppo di Acquisto Solidale Pisano (GASP), promoting fair, healthy, local trade.

Like reading, music, walking, travel

## **Full list of publications**

Caudai, C., Salerno, E., Zoppè, M. and Tonazzini, A. (2017) *3D chromatin structure estimation through a constraint-enhanced score function*. *BMC Bioinf.* submitted

Zoppè, M. (2017). *For a perceptive understanding of cellular biology*. *Nat Meth* (accepted)

Zoppè, M. (2015). *La sindrome dell'impostore: Non sono davvero brava come sembra. The Impostor syndrome: I'm not as good as it seems*. S. Avveduto, M. L. Paciello, T. Arrigoni, C. Mangia, L. Martinelli (eds.). Roma: CNR-IRPPS e-Publishing.

Zoppè, M. (2015). *Cinema nella cellula: visualizzazione 3D in biologia*. Atti di Pianeta Galileo, Regione Toscana, Consiglio regionale, pp 165-170

Caudai, C., Salerno, E., Zoppè, M. and Tonazzini, A. (2015). *A Statistical Approach to infer 3D Chromatin Structure*. In: V. Zazzu et al. (eds.), *Mathematical Models in Biology*, Springer International Publishing, Switzerland.

Caudai, C., Salerno, E., Zoppè, M. and Tonazzini, A. (2015). *Inferring 3D chromatin structure using a multiscale approach based on quaternions*. *BMC Bioinformatics*, 16:234.

Zoppè, M. and Loni, T. (2015). *The Representation of Electrostatics for Biological Molecules*. In: W. Rocchia and M. Spagnuolo (eds.), *Computational Electrostatics for Biological Applications*, Springer International, Switzerland. 215-225.

Zoppè, M. (2014). *Comunicare l'invisibile. La rappresentazione visiva di concetti biofisici / Communicating the Invisible. The Visual Representation of Biophysical Concepts*. In: Scrittura e immagini nel dominio della scienza / Text and Image in the scientific realm. A cura di/Edited by : R. Falcinelli, A. Filippini, G. Liberti, L. Perondi e L. Romei. Progetto Grafico, 25:50.

Bombardini, T., Zoppè, M., Ciampi, Q., Cortigiani, L., Agricola, E., Salvadori, S., Loni, T., Pratali, L. and Picano,

- E. (2013). *Myocardial contractility in the stress echo lab: from pathophysiological toy to clinical tool*. Cardiovascular Ultrasound, 11:41
- Zini, M.F., Porozov, Y., Andrei, R., Loni, T. Maraziti, G, Pan M. and Zoppè, M. (2012). *Fast and Efficient All Atom Morphing of Proteins Using Blender Game Engine*. <http://arxiv.org/abs/1009.4674>
- Zini, M.F., Porozov, Y., Loni, T., Andrei, R., Zoppè, M. (2012) *Use of BioBlender for all atom morphing of protein structures*. EMBnet. Journal, 18 (supA) 124.
- Zoppè, M. (2012). *Step back from the edge*. EMBO reports 13:772
- Andrei, R., Callieri, M., Zini, M.F., Loni, T., Maraziti, G. and Zoppè, M. (2012). *Intuitive visualization of surface properties of proteins using BioBlender*. BMC Bioinformatics, 13(Suppl 4):S16.
- Zoppè, M. *Vedere l'invisibile*. (2011). Le Scienze – Italian version of *Scientific American*. Roma, 515: p. 64-9. July
- Callieri, M., Andrei, R. M., Di Benedetto, M., Zoppè, M., Scopigno, R. (2010). *Visualization Methods for Molecular Studies on the Web Platform*. The Web3D 2010 Conference. 15th International Conference on 3D Web Technology.
- Andrei, R.M., Pan M., Zoppè, M. (2010). *BioBlender: Blender for Biologists*. BlenderArt Magazine, Issue 31, Dec. 2010. P 27-32
- Zoppè, M., Andrei, R., Cianchetta, S., Zini, M.F., Loni T., Cudai, C., Callieri, M. (2009). *Blender for biology: The making of Protein Expressions - Study N.2* Proceeding of the Blender Conference, Amsterdam 2009.
- Zoppè, M., Porozov, Y., Andrei, R., Cianchetta, S., Zini, M.F., Loni T., Cudai, C., Callieri, M. (2008). *Using Blender for molecular animation and scientific representation*. Proceeding of the Blender Conference, Amsterdam 2008.
- Porozov, Y., Andrei, R., Zoppè, M. (2007) *Visualization of moving biomolecules: a new approach based on professional 3D animation software*. Nettab 2007. Network Tools and Applications in Biology. 12 - 15
- Di Primio, C., Galli, A., Cervelli, T., Zoppè, M., Rainaldi, G. (2005). *Potential of gene targeting in human cells by expression of Saccharomyces cerevisiae Rad52*. Nucl. Acid Res.33, p. 4639-48.
- Spinazzola, F. Zoppè, M. (2005). Capitolo "*Le nuove guerre: armi biologiche anche da noi?*" nel volume *Il Male Invisibile, Sempre più Visibile*, a cura di M. Zucchetti. Odradek Edizioni, p.207-16.
- Pennati M, Binda M, Colella G, Zoppè, M, Folini M, Vignati S, Valentini A, Citti L, De Cesare M, Pratesi G, Giacca M, Daidone MG, Zaffaroni N (2004). *Ribozyme-mediated inhibition of survivin expression increases spontaneous and drug-induced apoptosis and decreases the tumorigenic potential of human prostate cancer cells*. Oncogene 23, p. 386-94.
- Fittipaldi, A., Ferrari, A., Zoppè, M., Arcangeli, C., Pellegrini, V., Beltram, F. and Giacca, M. (2003). *Cell Membrane Lipid Rafts Mediate Caveolar Endocytosis of HIV-1 Tat Fusion Proteins*. J. Biol. Chem; 278, p. 34141-49.
- Patrone, M. Percivalle, E., Secchi, M., Fiorina, L., Pedrali-Noy, G., Zoppè, M., Baldanti, F., Hahn, G., Koszinowski, U., Milanesi, G., and Gallina, A. (2003) *The human cytomegalovirus UL45 gene product is a late, virion-associated protein and influences virus growth at low multiplicities of infection*. J. Gen. Virol. 84, p.3359-70.
- Tasciotti, E, Zoppè, M. and Giacca, M. (2003) *Transcellular transfer of active HSV-1 thymidine kinase mediated by an 11 amino acid peptide from HIV-1 Tat*. Cancer Gene Ther. 10, p. 64-74.
- Marcello, A., Zoppè, M. and Giacca, M (2001). *Multiple modes of transcriptional regulation by the HIV-1 Tat transactivator*. IUBMB Life 51, p. 175-81.
- Sacco, M. G., Barbieri, O., Piccini, D., Noviello, E., Zoppè, M., Zucchi, I., Frattini, A., Villa, A. and Vezzoni, P. (1998). *In vitro and in vivo antisense-mediated growth inhibition of a mammary adenocarcinoma from MMTV-neu transgenic mice*. Gene Ther. 5, p. 388-93.
- Wang, L., Zoppè, M., Hackeng, T. M., Griffin, J. H., Lee, K. F. and Verma, I. M. (1997). *A factor IX-deficient*

*mouse model for hemophilia B gene therapy*. Proc. Natl. Acad. Sci. USA 94, p. 11563-6.

Zoppè, M., Frattini, A., Faranda, S. and Vezzoni, P. (1996). *The complete sequence of the host cell factor 1 (HCFC1) gene and its promoter: a role for YY1 transcription factor in the regulation of its expression*. Genomics 34, 85-91.

Somia, N. V., Zoppè, M. and Verma, I. M. (1995). *Generation of targeted retroviral vectors by using single-chain variable fragment: an approach to in vivo gene delivery*. Proc. Natl. Acad. Sci. USA 92, p.7571-4.

Villa, A. Zucchi, I. Pilia, G. Strina, D. Susani, L. Morali, F. Patrosso, C. Frattini, A. Lucchini, F., Repetto, M. Zoppè, M. and Vezzoni, P. (1993). *ZNF75: isolation of a cDNA clone of the KRAB zinc finger gene subfamily mapped in YACs 1 Mb telomeric of HPRT*. Genomics 18, 223-9.

Maestrini, E., Patrosso, C., Mancini, M., Rivella, S., Rocchi, M., Repetto, E., Villa, A., Frattini, A., Zoppè, M. and Vezzoni, P. (1993). *Mapping of two genes encoding isoforms of the actin binding protein ABP-280, a dystrophin-like protein, to Xq28 and to chromosome 7*. Hum. Mol. Genet. 2, p. 761-6.

Ceriotti, A., Pedrazzini, E., Fabbrini, M.S., Zoppè, M., Bollini, R. and Vitale, A. (1991). *Expression of the wild-type and mutated vacuolar storage protein phaseolin in Xenopus oocytes reveals relationship between assembly and intracellular transport*. Eur. J. Biochem. 202, p.959-68.

Vitale, A. Zoppè, M., Fabbrini, M.S., Genga, A.M., Rivas, L. and Bollini, R. (1989). *Synthesis of Lectin-like Protein in developing Bean Cotyledons of normal and Phytohemagglutinin-deficient Phaseolus vulgaris*. Plant Physiol. 90, p. 1015-21.

Fabbrini, M.S., Zoppè, M., Bollini, R. and Vitale, A. (1988). *1-Deoxymannojirimycin inhibits Golgi-mediated processing of glycoproteins in Xenopus oocytes*. FEBS Letters 234, p.489-92.

Vitale, A., Zoppè, M. and Bollini, R. (1987). *Identification of a Lectin-like Protein in the Endoplasmic Reticulum of Developing Bean Cotyledons*. In: *Plant Membranes: Structure, Function, Biogenesis*. UCLA Symposium on Molecular and Cell Biology, New Series, vol. 3, Leaver and Sze eds., Alan R. Liss Inc., New York, NY, p. 359-68.

## List of movies

[The Dark Anim](#), 2015 (5', 23"). A description of the serotonergic synapse, and its activity in the healthy and depressed states. With subtitles in English, French and Italian. The Dark Anim featured in the *Science of the unseen*, at [SIGGRAPH 2016](#) in Los Angeles, CA USA.

[The Challenge of HIV Research](#), 2013 (2', 45"). A short movie developed as a means to sensitize people about HIV and the need of research to find a cure. Fourth classified in the '[AutoPACK visualization contest](#)'

[Dilated Cardiomyopathy](#), 2013 (9', 08"). How cardiac cells work in health and disease: the signal (Calcium-induced calcium release), the contraction (actin-myosin sliding), the sarcoplasmic reticulum (calcium reuptake and fiber relaxation).

[NANOPLANET](#), 2012 (5', 47"). A trip to the nanoworld of cells. The movie was originally produced for projection in a [dome](#) (immersive environment), and later released as a regular short to be seen on a flat surface. Winner of the Art&Science contest at the Biophysical Society Meeting 2012.

[TSH receptor on Red Blood cells](#), 2011 (3', 48"). Thyrotropin is a hormone that elicit response from thyroid gland. However, its receptor is also found on the surface of red blood cells. After binding, the dimeric receptor splits into two subunits, each of which leaves the lipid raft to associate with other proteins of the cellular surface.

[BPTI](#), 2011 (28"). An initial study on the issue of molecular vibration, using data derived from Molecular Dynamics simulation. If seen for some time (few minutes), the vibration starts to make sense, as our visual system 'learn' to extract major changes hidden in vibration.

[PROTEIN EXPRESSIONS - Study N.3](#), 2010 (5', 01"). The video, also produced in [3D](#), is the final one in a series of tests in the development of BioBlender. It shows several moments of cellular life, from the surface to the cytoplasm and back to cell periphery and out. Watched >70.000 times (Vimeo statistics).

[PROTEIN EXPRESSIONS - Study N.2](#), 2009 (3', 23")

[PROTEIN EXPRESSIONS - Study N.1](#), 2009 (3',31")

[HIV gp120](#), 2008 (48"). Study on the 'missing loops' of the viral protein.

All short movies produced by SciVis are available under Creative Common License (BY NC SA), therefore free to download and use for non commercial purposes. They can all be accessed from our [website](#).

## **Meetings**

From 1987 onwards, I have participated to >100 scientific meetings, always bringing a contribution in the form of poster, oral presentation, or invited talk. They would be too long to list here.